

Chapter 5

EARLY PARENTHOOD: DEFINITION AND

PREDICTION IN TWO BRITISH COHORTS

Research Findings

Dylan Kneale

Centre for Longitudinal Studies, Institute of Education, University of London

Abstract:

This research examines factors that predict age at first parenthood in two UK birth cohort studies. It is part of a larger UPTAP project based at the Institute of Education, examining the effects of the time to first parenthood and mothers' employment on childhood outcomes. Teenage fertility affects a diminishing and increasingly select number of women, and particularly, men. This chapter explores one aspect of this research by examining those predictors known to affect the time to first parenthood, drawing from quantitative and qualitative demographic and sociological literature. It offers evidence that challenges the conventional definition of "early" parenthood by comparing a narrow group of early parents as teenagers with a wider population of 'early' parents that uses a more inclusive and relative definition of 'early'. This chapter explores new factors that are found to predict early parenthood, for both men and women, and uses cohort comparisons to understand historical trends.

Key words: Fertility, Early Parenthood, Predictors; Teenage mothers; Teenage Fathers; NCDS; BCS70.

1. BACKGROUND

Since the baby boom of the 1960's, births in the UK have been falling in number while age at first birth has risen. Low and late fertility is an important part of the second demographic transition (Van De Kaa, 1987). While in the first years of the New Millennium, the Total Fertility Rate has fluctuated slightly and has once again begun to rise, or catch up; the tendency to postpone entry to motherhood has persisted with a continued rise in average age at first birth (Office for National Statistics, 2007). However, this rise has not occurred as a neutral shift towards older ages. While teenage fertility rates have only dropped slightly since peaking recently in the late 1990s, this pace of change has not matched the dramatic rise in fertility among older age groups (Office for National Statistics, 2007). In 1996, the Age Specific Birth Rate for teenagers stood at 29.7 per 1000 women, dropping to

26.6 in 2006¹. In the same period, the rate increased from 37.5 to 53.8 births per 1000 women aged 35-39 years. Combined with the fact that by the age of 30 years, 67% of women born in 1960 would have become mothers; while for women born just fifteen years later in 1975, this estimate had dropped by 10% to 57% (Office for National Statistics, 2007); then a picture of decreasing fertility in the twenties is being painted. Such decreases are usually attributed to postponement, as opposed to large scale avoidance of parenthood (Kneale and Joshi, Under review). Put in succinct terms, this almost denotes 'a move towards older fertility for the majority and early fertility for the minority' (Hadfield et al., 2007). This unequal shift in the fertility schedule is understood to be representative of social polarization in age at first birth (Joshi, 2007, Kneale and Joshi, Under review). Older first time mothers are associated with a range of advantageous characteristics not shared by early first time mothers. It is this polarization in the characteristics and outcomes of first time mothers, and by extension, fathers, and their children; that is the cause of continued concern about the transition into early parenthood.

One of the widespread conventions of the literature into early parenthood is that parenthood stops being early at the age of 20 years. There are various definitions of 'teenage' motherhood in the literature - pregnancy under 16, 18 or 20 - as well as a more literal cut-off of giving birth while still aged 19 or under (Social Exclusion Unit, 1999, Birch, 1996). Our concern here is why the line should be drawn at age 20. Despite the shift, albeit somewhat unbalanced, of the fertility schedule towards older ages, this convenient definition of teenage parenthood remains a pervasive concept in studies, with very few studies extending the cut off point for early parenthood beyond this². In studies examining teenage parenthood, there is little or no justification given as to why the clock stops at 20 years³. This is despite the fact that many of our parents and grandparents may have been teenage first time parents themselves (Geronimus, 1997). In fact, in her later work, Geronimus describes teenage parenthood as more a political tool than a social construct (Geronimus, 2003), and certainly, there is grounds to question this distinction. Not only does the age twenty threshold come at a convenient point in the coding of ages into five-year bands, the term teenage has other connotations - of adolescence, immaturity and not being old enough for the 'adult' role of a parent. A 'teenage parent' is almost a contradiction in social terms.

In terms of outcomes, there are only a few studies where the distinction of teenage and early parenthood has been explored. In their study, Hobcraft and Kiernan found that the widest gulf in terms of

¹ It can be assumed that most teenage births would represent first births. To our knowledge, statistics on birth order for births outside marriage are not collected. We therefore demonstrate these trends using statistics on all births.

² The works of Robson & Berthoud and Hobcraft & Kiernan provide two examples of a more inclusive definition of 'early' parenthood.

³ This addressed fully in Kneale D (Unpublished)

adult outcomes was between those having a first birth under 23 years and those between 23 and 32 years, although this was reinforced by ‘teenage’ parenthood (Hobcraft and Kiernan, 2001)⁴. As mentioned however, studies that experiment with a definition of early in terms of outcomes are few and far between. Some researchers who have taken a counterfactual approach to the timing of parenthood by asking ‘what would have happened had the teenage (mother) delayed childbearing?’; have found no benefit to delaying motherhood among this group and have even found early motherhood to be a beneficial strategy (Goodman et al., 2004, Hotz et al., 2004). This again would appear to suggest that joining the labels of teenage and parent in such an unchallenged way is the product of a form of manufactured risk. Throughout this chapter, it is the hypothesis that focus on teenage parents has stemmed from a stigmatised view of the ‘correct path to parenthood’ (Hadfield et al., 2007). This focus has seemed disproportionate given their low and diminishing prevalence. It is the proposition here that in terms of predictors, their characteristics do not vary significantly from early parents in their twenties.

To examine the validity of the teenage construct, this research uses a number of definitions of ‘early’ through which to examine transition to early parenthood as well as using different ways of modelling ‘early’. Although this chapter is focussed firmly on whether age 20 is still a meaningful boundary as concerns the transition to parenthood, it can also be seen as a contribution to the literature on the timing of ‘youth transitions’ in the life course generally, with many other aspects of adult roles, in the labour market and housing for example being ‘delayed’ well beyond age 20 (Pollock, 2008).

2. PREDICTING EARLY PARENTHOOD

The label early parent or teenage parent applies to a diverse group of people. Indeed, it has been speculated that the only commonality binding early parents is just that – that they were young when having children (Harden et al., 2006). However, there is a considerable body of quantitative and qualitative studies finding recurring themes and patterns that have predictive power over the timing of parenthood. These can be grouped under the following four headings⁵ and while these groups are not exhaustive, they serve as a useful framework of the factors that are known to be significant. This framework applies to

⁴ However, it is unclear whether there is a censoring effect in their results. Early mothers may have been compared to artificially more advantaged groups given that entry into the early motherhood category may have been conditional on being present only at age 23 years. For the comparison group (birth between 23 and 32 years), this was conditional on being present at age 23 and 33 years. It is known in the NCDS that those remaining in the study are those who have higher qualifications and live in less disadvantaged circumstances (Hawkes & Plewis, 2006).

⁵ References represent only a selected group of studies that examine these predictors.

becoming a parent. It is not within the range of this study to examine factors associated with becoming pregnant but avoiding parenthood (abortion) or to examine predictors of avoiding conception (abstinence and contraception).

i. Educational factors

Educational underachievement and cognitive ability have been linked in several studies to an increased likelihood of becoming an early parent (Ermisch and Pevalin, 2003b, Harden et al., 2006, Jaffee et al., 2001, Arai, 2003). The pathway often suggested is one of low qualifications leading to poorer labour market prospects. This in turn lowers the opportunity costs of having children early (Ermisch and Pevalin, 2003b). This pathway has applied to the case of early motherhood. For early fatherhood, educational factors are included as a matter of course, although there is little theoretical development of such a causal pathway for men as in the case of women. In particular, while low educational achievement is likely to lead to poorer trajectories in the labour market; there is no theorised substitution of parenthood for career as is the case for women. A possible pathway that could form from the view that education may be important is the partnership market. Low levels of education may, through 'assortative mating' (or homogamy), go along with a partner with low educational level for whom the opportunity cost of early childbearing is low, or who is herself impatient to start a family. Alternatively, lower educational achievement may be associated with a greater preponderance to risk taking behaviour which may include fathering early pregnancies.

A limited number of studies have explored the effect of education further through examining the effect of disliking school on early pregnancy (Bonell et al., 2005, Imamura et al., 2007, Bonell et al., 2007, East et al., 2006). In Bonell's 2005 study, dislike of school was found to be a potent predictor of early teenage (under 16) pregnancy and replaced other personal factors. However, this association was statistically accounted for by the inclusion of socioeconomic features (Bonell et al., 2005). In East and colleagues' study, school orientation was measured as achievement and ambition for higher education; both of which were insignificant alongside other factors (East et al., 2006). In qualitative research, links have also been made between dislike of school and pregnancy; though to operate along an opportunity cost pathway largely in this case (Arai, 2003). In these data, dislike of school has been explicitly included in models of entry into parenthood and represents the first such research to do so to our knowledge.

ii. Socioeconomic factors

Socioeconomic factors have been implicated in a wide range of studies of the predictors of early parenthood and are pervasive in most research, either explicitly or as background controls (Bynner et al.,

2000, Ermisch and Pevalin, 2003b, Ekert-Jaffe et al., 2002). Usually socioeconomic factors include income, social class and tenure. In this research, while we test all three spheres to a certain extent, we find tenure to be the strongest predictor.

All three spheres are meant to capture an effect of disadvantage and to predict the probability of poor labour market success. Schoon and colleagues' research provides a useful framework with socioeconomic background being 'one of the main predictors of cognitive development, which provides the underpinnings of academic achievement upon which much success in later life depends' (Schoon et al., 2002). However, the fact that socioeconomic factors retain significance and sometimes outweigh the effect of educational predictors of early parenthood suggests that socioeconomic factors are capturing an element of labour market disadvantage not completely accounted for by educational factors. Other pathways through which socioeconomic factors can operate include lowered personal, social and sexual negotiation skills, limited access to healthcare, lack of positive role models and living in dangerous environments (Singh et al., 2001). In this research, socioeconomic factors are found to be instrumental in distinguishing some definitions of 'early' parenthood and are also found to have differential effects between motherhood and fatherhood.

iii. Demographic factors

An unstable home life is consistently identified as a predictor for the timing of motherhood. This can include a history of being in social services care, sexual abuse, parental divorce and parental mental health problems (Kiernan and Hobcraft, 1997).

In our research, against other background controls, we find an indicator of unstable parental structure (covering divorce, separation, death and foster care), to be a poor predictor of early parenthood. A far more consistent predictor is the age of cohort members' parents at first birth (East et al., 2006). This is consistent with other literature which finds a cyclical pattern of the timing of motherhood. The Social Exclusion Unit reports that sisters and daughters of teen mothers are six times more likely to become pregnant at an early age (Social Exclusion Unit, 1999). In their analysis of BCS70 data, Ermisch and Pevalin find that women born to teenage or young adult mothers (20-23 years old) are around two and a half times more likely to have a teenage birth themselves (Ermisch and Pevalin, 2003a). This evidence is also consistent with studies of early fatherhood (Berrington et al., 2005).

Ethnicity is also deemed an important predictor of the timing of motherhood, with non-white women usually at risk of experiencing early births in the UK and US (Social Exclusion Unit, 1999, Singh et al., 2001, Robson and Berthoud, 2006). Unfortunately in these data we

are unable to investigate ethnicity fully because of the low numbers of cohort members from ethnic minorities included in the NCDS and BCS70⁶.

iv. Behavioural and Philoprogenitive factors

In a large portion of the literature on early parenthood, and on teenage motherhood in particular, entry into parenthood is viewed as the outcome of a risk taking personality, with early parenthood being linked to other risk taking behaviours such as smoking, drug taking and alcohol consumption (Birch, 1992, Social Exclusion Unit, 1999, Jaffee et al., 2001). This does appear to support a theory that early parenthood may be equated with unplanned parenthood - unprotected sex being a risk factor and early parenthood the outcome. While for the more educated cohort members and for the BCS70 cohort as a whole, access to abortion as recourse would be easier, this would not have been an option for many cohort members. The assumption of unplanned parenthood could be viewed as a criticism of the importance of opportunity costs as a motivation of early parenthood. However, the choices once pregnant may instead be viewed as a reflection of this. In fact, in this research, we examine proxy measures for family building orientation and examine the effect of these as predictors of early parenthood.

In this research we additionally examine some of the drivers that could influence family building intentions through examining indices of behaviour. Behavioural characteristics may operate directly on a pathway to early parenthood through influencing family building intentions or may operate through lack of self-esteem or poor sexual negotiation skills (Jaffee et al., 2001, Hobcraft and Kiernan, 2001, Kendall et al., 2005, Birch, 1996). In particular in their study of early fatherhood, Jaffee and colleagues found a history of conduct disorder to be a significant predictor of early fatherhood (Jaffee et al., 2001) which may be linked to more general social dysfunction and withdrawal. Hobcraft and Kiernan (2001) examined anxiety, aggression and restlessness as drivers of early motherhood. Similar indicators using Rutter score measures are used in this research. This research finds behavioural measures do not account for family building orientation, suggesting this orientation may be linked to other measures such as contextual predictors. Further work on contextual predictors investigates this hypothesis further (Kneale, Unpublished).

While it is not within the scope of this chapter, or any research in general, to examine all these factors simultaneously (data constraints being one reason); the results presented in this chapter do successfully unpack some of these processes occurring in childhood. In particular,

⁶ The later Millennium Cohort Study over-sampled within areas with a high ethnic minority population so that ethnic group effects could be researched. See Chapter in this volume by Hawkes et al

given the rich data source used in these analyses, a number of these predictors can be compared across definitions of ‘early’ parenthood, across gender and, to a certain extent, across time. These results are discussed in detail across the remainder of the chapter.

3. AIMS

The aims of the rest of this chapter are to examine, in brief, the following:

- Do teenage parents differ in their backgrounds to parents in their early twenties?
- Do the predictors of early motherhood vary from those of early fatherhood?
- How have the predictors of early parenthood changed between two British cohorts?

As these aims are wide ranging, full results from every model are not presented here. This chapter aims instead to highlight the main findings from these results and to signpost the reader to potential considerations when researching patterns of transition to early parenthood. In addition, this chapter only presents results from parsimonious models. While a full range of predictors, listed later, were tested; only those significant in models containing other controlling factors are discussed.

4. DATA

This research uses two of the four British Birth Cohort studies - prospective longitudinal studies following the lives of individuals born during 1958 (National Child Development Study (NCDS)) and 1970 (British Cohort Survey (BCS70)). Recent papers outline the history of these studies and some of their most prominent findings (Plewis et al., 2004, Bynner and Joshi, 2007, Ferri, 1993, Elliott and Shepherd, 2006, Power and Elliott, 2006). Both studies prospectively followed individuals and were essentially a census of all born in one week in 1958 and 1970. For the NCDS, further data collection has occurred at ages 7, 11, 16, 23, 33, 41/42 and 46 years. Data from BCS70 cohort members were collected at ages 5, 10, 16, 26, 29/30 and 34 years. Data relevant to a wide spectrum of disciplines have been collected through these studies and combined, over 1,200 publications have documented some of the major findings of these studies (Elliott and Shepherd, 2006, Power and Elliott, 2006). This research exploits the breadth of this data in examining a number of childhood factors that are thought to predict early parenthood in the literature and explores some new predictors. NCDS was a pioneer in asking men to report their birth histories. It is nevertheless acknowledged that fatherhood is likely to

be under-reported (Rendall et al., 1999). This is particularly likely if the father is not living with the mother of his child and again particularly likely for the youngest mothers and fathers (Greene and Biddlecom, 2000, Rendall et al., 1999). In this chapter, we examine live births reported by cohort members, excluding stillbirths and other fertility outcomes. We exclude those still pregnant or those who have fathered a pregnancy not carried to full term and, inevitably births which were not reported by either men or women,

Fertility histories were collected from NCDS cohort members from age 16 onwards; while full histories for BCS70 members were not collected until 30 years. For the NCDS cohort full fertility histories were collected at 23, 33, 42 and 46 years⁷. In total, over 14,000 fertility histories are available for NCDS while for BCS70, almost 12,000 fertility histories are available. Analysis of transition to first parenthood using survival curves suggest that both cohorts are representative in fertility patterns when compared to Office for National Statistics estimates (Kneale, Unpublished, Office for National Statistics, 2007).

5. METHODOLOGY

Even in the 12 years between cohorts, age at first parenthood has increased significantly while the teenage parent population decreased. Among women, 13% of NCDS cohort members became teenage mothers dropping to 10% among the BCS70; while among men, 4% of the NCDS cohort were teenage fathers, dropping to a mere 3% among BCS70 members. Event history treatment of the data put the point at which the first 25% (lower quartile) of the whole NCDS cohort had entered into motherhood at 22 years 2 months. For BCS70 this point had risen by over a 1½ years to 23 years 11 months. For fatherhood, the pattern was even more startling, with the age limit of the first quarter to enter fatherhood rising from 24 years 11 months among NCDS to 27 years 1 month among BCS70. Such a rise would give the first indications that a definition of ‘early’ that is grounded against normative patterns of parenthood would respond to changes over time. This is reflected in figure 1, which also demonstrates the unequal shift in the rise in age at first birth mentioned above.

The assumption often made in the literature that teenage parents significantly differ from those in their twenties, was tested through piecewise linear regression. Using predictor and outcome information in univariate analysis, this technique only located break points (the points at which the trend differs significantly) well into the twenties, and even into the thirties in the case of BCS70 fatherhood (Kneale Unpublished). This cast doubt on the usefulness of threshold of

⁷ Some observations have been artificially truncated at age 23 years, while information for a small minority of others has not been used in this analysis.

early parenthood at age 20. However, using break points derived from piecewise regression may be a poor choice if we wish to make comparisons across genders and cohorts. Another approach is to explore a relative definition of ‘early’. We tried two of these: firstly, ‘very early’ representing the first 12.5% of the cohort (by gender) to enter into parenthood, and secondly, ‘early’ as the first 25% to enter parenthood; besides the absolute dividing line at age 20⁸. These are displayed in table 1:

Table 1: Age atEntry into parenthood at each quartile and levels of childlessness at last observation: BCS70 and NCDS cohorts

Gender	Cohort	First 25% entering parenthood (Lower quartile)	First 50% entering parenthood (Median)	First 75% entering parenthood (Upper quartile)	Childless at last observation
♂	NCDS	24 years 11 months	29 years 5 months	38 years 2 months	20.8%
	BCS70	27 years 1 month	33 years 2 months	-	41.6%
♀	NCDS	22 years 2 months	26 years 6 months	32 years 5 months	15.6%
	BCS70	23 years 11 months	29 years 2 month	-	27.4%

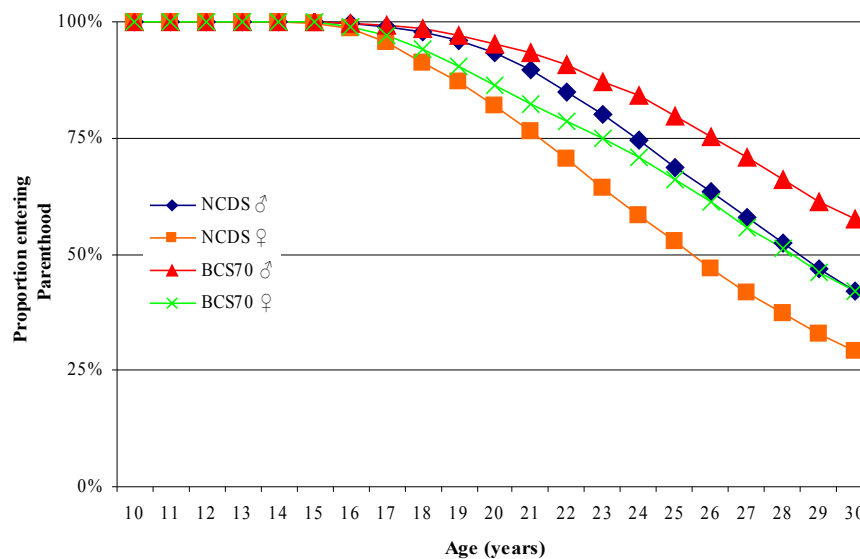


Figure 1: Entry into Parenthood up to 30 years by gender and cohort: NCDS and BCS70 cohorts

Binary logistic regression models are used to examine the strength of predictors using these definitions of early and employing a backward elimination method. These estimate the probability of becoming an early parent versus not becoming an early parent after accounting for a number of known predictors. Those not becoming an early parent include those who became a parent at a later stage, who remained

⁸ Information for models of very early motherhood in NCDS are not presented because this distinction corresponds very closely with the teenage definition.

childless, or who left the studies and were lost to follow up⁹. Binary logistic as opposed to multinomial logistic regression models are used because of the overlap between the categories that represent ‘not becoming an early parent’. We have also used, event history models to examine the effect of predictors of the timing of parenthood over the ‘early’ years, but these results are not presented fully here. The focus of results presented here is the effect of childhood factors (measured up to the age of 16 years) as predictive of early parenthood. While it is recognised that early adult predictors may increase and actually overtake childhood factors in their potency, given their proximity to the event under study, they could introduce problems of reverse causality; and are left beyond the scope of this study.

6. SUMMARY OF RESULTS

As can be observed in Table 2 for the NCDS cohort and Table 3 for the BCS70 cohort, representing only a summary of significant factors in full models, a complex and diverse formula of states and factors help to predict entry into early parenthood¹⁰. A number of significant trends stand out that not only illuminate the predictors of early, as opposed to teenage parenthood, but also challenge conventional wisdom. In particular, we note: housing tenure as a predictor over social class for both cohorts; the consistency of disliking school as a strong predictor for both sexes; and the case of age 20 as being a break in the continuum of early fatherhood characteristics; as being distinct in these data. In these tables, the area under the ROC curve (Receiver Operating Characteristics) is calculated. This is reflective of the accuracy of the model – for example 0.75 is reflective of the fact that we would correctly estimate the values of the predictors of an individual based on their status $\frac{3}{4}$ of the time. All models also passed the Hosmer-Lemeshow test.

Direct measures of childhood socioeconomic conditions here signify the social class environment, tenure environment and receipt of unemployment or sickness benefit at age 10 (BCS70) and age 11 (NCDS). Social class environment measures the number of times a cohort member’s father has been identified as belonging to a certain social class. This is then categorised into all observations, some observations or never recorded. In order to maximise sample size, while incorporating some measure of social class mobility within the parental generation, this variable did not differentiate by the number of observations recorded for a cohort member. For example, a cohort member in a certain social class at age 10 years but not observed

⁹ Censoring began at 23 years onwards for some NCDS cohort members and 30 years onwards for BCS70.

¹⁰ The results in these models represent the most parsimonious fitting model for predicting each definition. Other predictors tested but not found to be significant against other controls were as listed: NCDS: Parental Structure at ages 0, 7 and 11; other education test scores at ages 7 and 11; Cohort Participation. BCS70: Parental Structure at ages 0 and 10; other education test scores at ages 5 and 10 (and 16); receipt of Unemployment and Sickness benefits and School Attendance at age 11 years.

another time would be classified as having all observations in that social class. This decision was taken after it was observed that transition between waves remained relatively stable after the birth and first waves of data collection; which in themselves have high wave response rates. In an acknowledgement that this variable is highly dependent of participation at childhood waves of data collection, a control variable was tested that measured participation, although was found to be insignificant for the most part. A similar strategy was adopted for Tenure (with a breakdown given later) while the benefits variable was a binary variable reflecting receipt of state unemployment and sickness benefits during middle childhood. Measures of behaviour represent components derived from Principal Components Analysis of Rutter Score measures that are common to both cohorts. These differ in their importance between models, with an index of aggression/misbehaviour (age 16 for all forms of early motherhood and definitions of BCS70 fatherhood) and an index of worry/fearfulness (age 16 for NCDS early fatherhood and age 7 for teenage NCDS fatherhood) taking prominence.

Table 2: Summary of Significant Predictors of Early Parenthood: NCDS Cohort

NCDS	♂	♀
------	---	---

	Early (First 25%)	Very Early (First 12.5%)	Teenage	Early (First 25%)	Teenage
Father's Social Class	✓	✓			
Tenure	✓	✓		✓	✓
Unemployment or Sickness Benefits (Age 16)				✓	
Personality (Age 7)			✓		
Personality (Age 11)	✓				
Personality (Age 16)	✓		✓	✓	✓
Intentions (Age 16)			✓	✓	✓
Parental Education				✓	
Maths Score (Age 11)				✓	✓
Maths Score (Age 16)	✓	✓	✓	✓	
Reading Score (Age 16)	✓			✓	
School Dislike (Age 16)	✓	✓		✓	✓
Attendance (Age 11)				✓	✓
Parental Age at First Birth	✓	✓	✓	✓	✓
Parental Structure Age 16			✓		
Sample Size	2,367	3,278	2,859	1,955	2,784
Area under ROC curve	0.729	0.744	0.793	0.794	0.822

Table 3: Summary of Significant Predictors of Early Parenthood: BCS70 Cohort

BCS70	♂	♀
-------	---	---

	Early (First 25%)	Very Early (First 12.5%)	Teenage	Early (First 25%)	Very Early (First 12.5%)	Teenage
Father's Social Class	✓			✓	✓	
Tenure	✓	✓		✓	✓	✓
Unemployment or Sickness Benefits (Age 16)				✓	✓	✓
Personality (Age 5)		✓		✓		
Personality (Age 10)		✓				
Personality (Age 16)	✓	✓	✓	✓	✓	✓
Intentions (Age 16)				✓		✓
Parental Education	✓	✓	✓			
EVPT Score (Age 5)					✓	✓
Maths Score (Age 10)				✓		
Reading Score (Age 10)	✓			✓	✓	✓
Matrices Score (Age 10)		✓				
School Dislike (Age 16)	✓	✓	✓	✓	✓	✓
Parental Age at First Birth	✓	✓	✓	✓	✓	✓
Parental Structure Age 5			✓			
Parental Structure Age 16		✓				
Cohort Participation					✓	✓
Sample Size	3,210	2,220	3,712	2,702	2,807	2,809
Area under ROC curve	0.707	0.753	0.792	0.780	0.801	0.810

7. **TEENAGE FATHERHOOD AS A CHOICE VERSUS TEENAGE MOTHERHOOD AS AN ADAPTATION: BREAKS IN THE CONTINUUM**

As mentioned previously, the focus on teenage parents has seemed disproportionate given their low, and diminishing, prevalence and a large part of the investigation has been to examine if, in terms of predictors, their characteristics vary significantly from people who became parents in their early twenties. This was not generally found to be the case. However, a peculiarity that does stand out in terms in the results is the weak role that direct measures of socioeconomic status have in the case of teenage fatherhood. This did not apply to more extensive definitions of early fatherhood, and appears to break the continuum between teenage and other forms of early fatherhood. This phenomenon increases in the later cohort, with a total absence of

socioeconomic measures registering in the BCS70 model of teenage fatherhood.

All variables included in the fatherhood models presented in tables 2 and 3 have significant predictive power. Model fit statistics suggest that the models for predicting early fatherhood provide a weaker framework of predictors than teenage fatherhood. While it would be expected that early fatherhood would constitute a more diverse group of fathers than teenage fatherhood; these results suggest that those joining the early fatherhood group (that already includes teenage fathers) are actually a group that is governed by a significantly different set of predictors than those of teenage fathers, to the point where modelling two distinct populations as a joint category produces a poorly fitting model¹¹. This is demonstrated in table 4, which shows the impact of removing different sets of predictors, with higher values representing a better prediction. For example, in the full model of NCDS teenage fatherhood, 79% of cases could be accurately predicted while for a model excluding behavioural characteristics this dropped to 72%.

Table 4: Goodness of fit statistics (Area under ROC curve): Binary Definitions of Early Fatherhood

Cohort	Definition	Model excluding Direct Childhood Socioeconomic Measures	Model excluding Behavioural and Philoprogenity Measures	Full Model	N
NCDS	Early Fatherhood	0.705	0.722	0.729	2,367
	Very Early Fatherhood	0.710	n/a	0.744	3,278
	Teenage Fatherhood	n/a	0.716	0.793	2,859
BCS70	Early Fatherhood	0.679	0.704	0.707	3,210
	Very Early Fatherhood	0.748	0.738	0.753	2,220
	Teenage Fatherhood	n/a	0.764	0.792	3,712

The results suggest that while transition to fatherhood in the early twenties is an adaptation to socioeconomic factors and probably more proximal measures of socioeconomic status; fatherhood under 20 is associated more with behavioural and motivational factors. In the case of fatherhood therefore, the continuum appears to move from different sets of predictive factors (from behavioural to socioeconomic) that govern transition, while for motherhood it appears more of a continuum moving gradually in terms of strength of prediction of the same variable groupings. In particular, the model for teenage fatherhood may be more of a model reflecting sexual behaviour among teenagers than conscious transition to fatherhood. Unfortunately, it is difficult to assess this supposition given that there are few studies that collect personality measurements with information of sexual behaviour, with the latter not collected in the NCDS and BCS70. The inclusion of mother's age of finishing continuous

¹¹ Using the Hosmer-Lemeshow test; although these results appear to be dependent on the way that predictions are grouped (Harrell, 2001) and are not presented here in favour of ROC curve results, that are less responsive to this.

HARRELL, F. E. J. (2001) *Regression Modeling Strategies; With Applications to Linear Models, Logistic Regression and Survival Analysis*, New York, USA, Springer.

education in the BCS70 teenage fatherhood model and the significance of mother's and father's age at first birth in the BCS70 and NCDS models respectively may represent a socioeconomic dimension or may well reflect parental input (including an element of having a role model), which may be moderators of teenage sexual behaviour¹².

Both teenage fatherhood models find that having a high score for an aggressive, disobedient and destructive nature at age 16 years to be significant. In fact, those with a score in the highest quartile for this component were 3.4 times (Confidence Interval (CI): 1.3-8.8) and 4.6 times (CI: 1.9-11.2) more likely to become teenage fathers than those with a score in the lowest quartile for NCDS and BCS70 respectively. For BCS70, dislike of school at age 16 (discussed later) was found to be highly significant. Those who disagreed in full with a statement on disliking school were 83% less likely to become teenage fathers in BCS70 (Odds Ratio (OR): 0.17; CI: 0.07-0.43). In NCDS, those who were uncertain as to the ideal age at which they wanted to start a family were 85% (OR: 0.15; CI: 0.03-0.67) less likely to become teenage fathers than those who thought it ideal to start a family at age 16-19 years. While some of these factors were significant in more inclusive definitions of 'early' fatherhood; it was the fact that these were more prominent than socioeconomic measures that defines teenage fatherhood from early fatherhood in these models.

Teenage motherhood models show a greater continuum between teenage and other definitions of early motherhood. In addition, as might be expected, a greater range of covariates have been identified as significant for early motherhood than early fatherhood, which may indicate a less random social profile of young mothers. The stronger socioeconomic component suggests that early motherhood (or its avoidance) is more of an adaptation to economic circumstance than is the case for early fatherhood, which appears to be a behavioural rather than economic adaptation. This could be because fathering a child as a teenager is less likely to involve co-residence with the child than is the case for teenage motherhood and is likely to have less of a direct economic consequence. The temporality of behaviour though sees this change over time and it has been observed that some teenage fathers take up residence with the children a few years after birth (Clarke et al., 2000).

For both cohorts, all three definitions of early motherhood are governed by similar sets of predictors. Universal predictors of young motherhood across both cohorts include tenure, dislike of school at age 16, behavioural adjustment as identified through Rutter score measurements¹³ at age 16 and cohort members' mother's age at first birth. As a generalisation, the effect of these common covariates wanes

¹² Parental environment is examined in depth in other parts of the wider research:

KNEALE, D. (Unpublished) Pathways to Parenthood: Exploring the influence of Context as a Predictor of Early Parenthood. *Centre for Longitudinal Studies*. London, Institute of Education: University of London.

¹³ Based on reports from cohort members' mothers

slightly between teenage and early motherhood models, with early motherhood models representing a more diluted category, as a greater number of significant predictors are included in the more inclusive early motherhood models. However, in summary, it would appear that a continuum does exist between these definitions of early motherhood, given that the predictors appear to maintain their effect (figure 2).

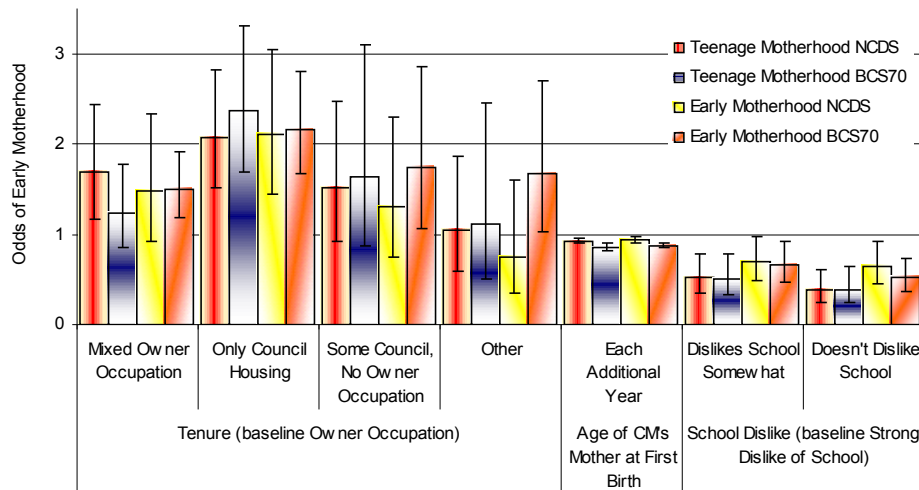


Figure 2: The odds of becoming an early or teenage mother: the effects of selected covariates from models with full controls^{14, 15}

8. THE POTENT EFFECT OF DISLIKING SCHOOL ON ENTRY INTO EARLY PARENTHOOD

Dislike of school itself has been examined as a predictor of early pregnancy with mixed results (Bonell et al., 2005). This is, to our knowledge, the first attempt to include, school dislike in models of entry into parenthood. We find dislike of school to be a potent predictor of early entry into parenthood, not only to teenage motherhood, but also across most definitions of early parenthood (including fatherhood). Furthermore, given that dislike of school is measured in a fairly consistent way across both cohorts, its effect appears to be increasing over time.

In these data, aversion to school has been measured as the agreement or disagreement with the statement “I do not like school”. This was measured at age 16 in both cohorts - in the NCDS as a 5 point scale while in the BCS70 this was as a three point scale. As the BCS70 cohort had a particularly low response of the age 16 sweep (Plewis et al., 2004), we created a missing category, which was replicated for NCDS for comparability purposes. Among NCDS boys, 17% reported a strong dislike of school with 18% in BCS70, while the levels for girls was slightly lower at 15 and 16% respectively for NCDS and BCS70. While the level of dislike of school has remained

¹⁴ See tables 1 and 2 for a full list of controls and sample sizes

¹⁵ The NCDS scale has been mapped into a three point scale for the purposes of Figure 2 and Table 4, but maintains a 5 point scale elsewhere in the models.

fairly constant, the effect may be growing. The results for School Dislike in models containing a full set of significant predictors are presented in Table 5.

Using those who dislike school as a baseline, it appears that even partial disagreement with the statement “I do not like school” is highly protective against early parenthood, particularly for the BCS70 cohort. In the case of teenage fatherhood, partial disagreement leads to a 79% reduction in the odds of becoming a teenage father. In lognormal event history models, for entry into fatherhood between the ages of 16-23 years among BCS70 males, partial disagreement with the statement leads to a 15% increase in the time spent childless (Time Ratio (TR): 1.15; CI: 1.08-1.23) with full disagreement leading to an 18% increase (TR: 1.18; CI: 1.10-1.27). Dislike of school produces the largest coefficients in this model, and maintains this effect when the observation time is extended to 30 years, overshadowing socioeconomic effects.

Dislike of school in the case of BCS70 teenage fatherhood outweighs the significance of socioeconomic measures, while is significant alongside socioeconomic measures in other models. Such a finding has not been replicated in the other few studies of dislike of school (Bonell et al., 2005). In addition, in these data dislike of school is found to be significant alongside measures of educational achievement, and again, overshadowing their impact in several cases. From a policy perspective, this finding is highly significant and suggests that where early parenthood is viewed as problematic, that school based interventions to improve engagement could have measurable results. Also of interest in these data and possibly related to dislike of school is the prominence of family building intentions and values as predictors of early parenthood.

Table 5: The effect of School Dislike on Early Parenthood: Odds Ratio results from parsimonious main effects models NCDS and BCS70

Cohort	Definition	School Dislike (Baseline: Strong Dislike of School)		
		Dislikes School Somewhat	Does not dislike School	Item Non-response
NCDS	Early Fatherhood	0.908	0.669*	0.799
	Very Early Fatherhood	0.807	0.511**	1.204
	Teenage Fatherhood	Not significant in full model		
	Early Motherhood	0.700*	0.665*	0.497
	Teenage Motherhood	0.517*	0.404**	0.318*
BCS70	Early Fatherhood	0.648*	0.589**	0.984
	Very Early Fatherhood	0.522*	0.336**	0.776
	Teenage Fatherhood	0.209**	0.170**	0.520*
	Early Motherhood	0.603**	0.517**	0.955
	Very Early Motherhood	0.517**	0.414**	0.666*
	Teenage Motherhood	0.498**	0.390**	0.590

** p < 0.01; * p < 0.05

9. EARLY PARENTHOOD AS PLANNED PARENTHOOD

Philoprogenitive tendencies (tendencies orientated towards children) might appear as obvious predictors of early parenthood, but they have actually received little attention. This is, possibly because of the assumption that very early parenthood is the result of unplanned pregnancy (Social Exclusion Unit, 1999), because these tendencies are subject to revision, because of reliance on socioeconomic theories of fertility or because of the lack of prospective data. In fact, family building intentions have been more the focus as concerns of postponement and childlessness (Simpson, 2006, Kneale and Joshi, Under review, Berrington, 2004) than early fertility; although some focus has been made in studies of teenage motherhood. One example is the index of 'positive orientation towards early motherhood' coined by Afable-Munsuz and colleagues, composed of a series of statements about the value of children where a latent desire for children was found among those becoming early mothers (Afable-Munsuz et al., 2005). However, a drawback of Afable-Munsuz's study is that its sample was a narrow population of African-American young women who were existing patrons of family planning services. In the present data, information has been collected in a less selective way, for two cohorts of both genders. East and colleagues also found similar results within a narrow high risk population (East et al., 2006).

NCDS cohort members aged 16 year olds were asked about the age at which they would ideally start a family, with responses grouped by age and also a category formed for those who intended to be childless. The modal response category for both sexes was 22-25 years and actually only a small number of cohort members chose the youngest category of 16-19 years¹⁶ (2% of boys and 3% of girls; those choosing under 22 years had higher numbers; 13% of boys and 18% of girls). Almost 10% of females and 3% of males choosing the childless category became teenage parents. BCS70 cohort members were asked about the importance of children in their own life to come at the age of 16 years on a three point scale. Females were most likely to answer that children mattered very much while males had higher levels that answered that children only mattered somewhat. While both measures are proxies of intentions, both will give an indication of family building preferences as predictors, and are referred to as family building intentions from this point forward.

These data find that philoprogenitive tendencies are generally a better predictor of early motherhood than early fatherhood. Only the model for NCDS teenage fatherhood finds these to be a mildly significant predictor. In the case of models of early motherhood among NCDS cohort members, the age at which the cohort member regards as the ideal age at first birth operates in a non-linear fashion (and is modelled as a categorical variable), with those uncertain about the

¹⁶ This is a combined category in the data of 16-17 and 18-19. There was no option to choose any earlier.

ideal age or those selecting 26-30 years having the lowest odds of becoming early mothers. Among BCS70 models of early motherhood, the importance of children is a significant predictor of teenage and early forms of motherhood with those deeming children to be unimportant half as likely to become early or teenage mothers than those deeming children to be very important. The results are presented in table 5 and figure 3.

Table 6: The effect of Intentions, as measured by importance of children, on Early Parenthood: Odds Ratios from parsimonious main effects models in BCS70

	Early Motherhood	Teenage Motherhood
Baseline (Children Very Important)		
Children Somewhat Important	0.539** (0.394 - 0.737)	0.734 (0.454 - 1.187)
Children Not Important	0.527** (0.346 - 0.804)	0.392* (0.179 - 0.855)
Item non-response	0.681** (0.486 - 0.954)	1.015 (0.622 - 1.656)
** p < 0.01; * p < 0.05		

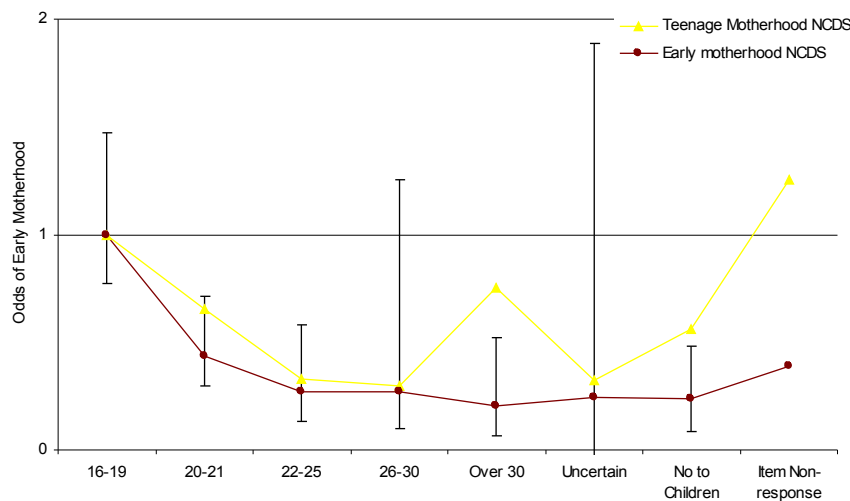


Figure 3: The effect of Intentions, as measured by ideal age at first birth, on Early Parenthood: Odds Ratios from parsimonious main effects models¹⁷

These data confirm that becoming an early mother is a process based upon more than only economic adaptation. For many young mothers, becoming an early mother is grounded in a desire to enter motherhood at an early age and a high value placed upon children. These factors remain significant even after controlling for socioeconomic factors, educational achievement, behavioural factors and more relevant perhaps, school dislike. Early motherhood is often taken for granted solely as a rational adaptation to economic factors, with poor labour market prospects leading to some reduced opportunity costs in having an early child (Ermisch and Pevalin, 2003b, Hoem, 2000). These data would demonstrate that even after accounting for factors influencing labour market opportunity costs (including educational factors and dislike of school), that a social norm influencing childbearing orientations remains for women. Should these preferences and social norms be consolidated on a community or neighbourhood level, it would be better to think of a teenage or any

¹⁷ Hatched lines represent confidence intervals for teenage motherhood model.

early mother as being “an emerging adult participant in active multigenerational social networks, than as a rebellious adolescent set apart from her elders” (Geronimus, 1997).

10. THE DOMINANT ROLE OF HOUSING TENURE OVER SOCIAL CLASS

A striking find in this analysis is the dominant role that housing tenure has in predicting early parenthood, alongside or even eclipsing the role of social class. Results from models of fatherhood are presented in Table 7 while figure 2 shows some results for motherhood. Housing tenure is one of the few predictors that moderates entry into nearly all forms of parenthood in both cohorts (with the exception of teenage fatherhood) in both event history and binary logistic modelling strategies. One could take the view that housing tenure represents a proxy for the type of neighbourhood. It could also be a direct measure of childhood socioeconomic conditions. The significance of tenure contributes to an emerging theme of the importance of contextual factors (Kneale Unpublished).

Table 7: The effect of Tenure on Early Parenthood: Odds Ratio results from parsimonious main effects models NCDS and BCS70 of fatherhood

Main effects models NCDS and BCS70 of fatherhood					
Cohort	Definition	Tenure (Baseline: Owner Occupation)			
		Mixed Owner Occupation Tenure	Only Council Tenure	Some Council, no owner occupation tenure	Other
NCDS	Early Fatherhood	1.300	1.797**	2.172**	1.527
	Very Early Fatherhood	1.493*	1.522**	1.550	1.449
	Teenage Fatherhood	Not significant in full model			
BCS70	Early Fatherhood	1.170	1.504**	1.294	1.369
	Very Early Fatherhood	1.250	1.538*	0.836	1.140
	Teenage Fatherhood	Not significant in full model			
** p < 0.01; * p < 0.05					

Table 7 shows that tenure has an equal and sometimes greater association with entry into early fatherhood than it has with entry into very early or teenage fatherhood. This is mirrored to some extent in BCS70 motherhood, but is contrary to most of our other results in this research that have found that common predictors among definitions have waned with more inclusive definitions of young parenthood. What this analysis adds to the story of early transition to parenthood is that housing tenure in childhood has effects lasting beyond conventionally defined adolescence and well into the twenties. In addition, this analysis shows that in certain cases, experiencing social housing, even if accompanied by upward movement into owner occupation, which may have been facilitated by the right-to-buy scheme for BCS70, has significant and lasting effects. This may well be as related to retaining community ties such as maintaining school or

peer groups, or the lasting legacy of childhood poverty. These conclusions mirror those of other research that has examined childhood tenure and adult outcomes (Feinstein et al., 2008).

11. CONCLUSIONS: BUILDING A PICTURE OF EARLY PARENTHOOD PATTERNS IN THE UK

In this chapter, we explored a definition of early parenthood bounded by the age at which one quarter of a cohort had become parents. For women born in 1958 this was just over 22, for those born in 1970 it had risen to just over 24. The corresponding figures for men were around 25 and 27. On this definition most 'early' childbearing is no longer confined to teenagers who account for less than 13% and 10% of women and 4% and 3% of men among the NCDS and BCS70 cohorts.

Early parenthood has been viewed through a wide prism in this research and as a result, this chapter illuminates several themes in the story of young parenthood in the UK. One of the first themes identified was the inadequacy of drawing the line at age 20. This inadequacy was revealed through univariate techniques, reinforced by multivariate exploration of predictors. However, the story was not straightforward. While teenage motherhood and early motherhood were described by similar processes and were essentially viewed as being on a continuum; the even smaller group of males reporting fatherhood as teenagers appeared to be a distinct group. In particular, the lack association between teenage fatherhood and socioeconomic factors was hypothesised as reflecting rather teenage male sexuality and risky behaviour than planned fatherhood. There are greater means and incentives for women to avert the consequences of an unplanned pregnancy than males. In the case of early fatherhood, there was a discontinuity as the earliest (teenage) fatherhood was associated with behavioural factors and movement towards socioeconomic factors with age.

Looking at particular predictors of early parenthood revealed some novel results. The dislike of school was identified as being pervasive in most models of early parenthood for both cohorts and genders. Having been previously linked to early pregnancy alone, and then only in models excluding socioeconomic predictors, its continuing strength in predicting early parenthood was surprising. The pathway behind this finding is unknown. This could reflect reduced opportunity costs of entering parenthood early, as is hypothesised in literature on early parenthood (Ermisch and Pevalin, 2003b); or alternatively be more of an indicator of contextual factors such as peer group, school or community effects; or a combination of both. The significance of philoprogenicity, as measured by ideal age at first birth

and importance of children in the NCDS and BCS70 respectively, even when controlling for a battery of other predictors, may again signify the importance of contextual factors. Finally, the strong predictive power of housing tenure and the observed effect of experience of poverty threw into question traditional measures of social class as sole measures of socioeconomic circumstance.

Our cross-cohort comparisons throughout have revealed slight nuances between the cohorts in the way these predictors operate. However, the overwhelming theme is one where the issue of comparability between cohorts can only really be made when relative measures are used. The inadequacy of using a teenage definition of early parenthood becomes particularly acute for BCS70 where the ‘absolute’ definition of early applies to an increasingly marginalised group. Of note as well is the increased potency of some predictors among the BCS70 cohort across all models suggesting that as a whole, social polarisation in age at first birth is forming a stronger discourse in the more recent cohort.

These results presented here have composed a picture of transition to early parenthood as being governed by numerous processes. In particular they have identified numerous pathways to early transition that vary from conventional predictors and definitions of early parenthood. These investigations have also revealed avenues for future work in investigating contextual predictors that are under investigation in further research (Kneale, Unpublished). While a number of significant predictors have been found to govern early parenthood, model fit statistics suggest that many more are yet to be found under the assumption that the timing of parenthood is more than just a random event.

ACKNOWLEDGEMENTS

I would like to acknowledge the contribution of Heather Joshi and Jane Elliott throughout this project both in editorial support and with analytical issues. I am very grateful for their support. I would also like thank Brian Dodgeon for his help in solving data issues encountered in this chapter. Finally, I would like to acknowledge UPTAP and the ESRC for their financial support as well as all those involved with the NCDS and BCS70 studies including the cohort members themselves.

REFERENCES

AFABLE-MUNSUZ, A., SPEIZER, I., MAGNUS, J. H. & KENDALL, C. (2005) A positive orientation toward early motherhood is associated with unintended

- pregnancy among New Orleans youth *Maternal and Child Health Journal*, 10.
- ARAI, L. (2003) Low expectations, sexual attitudes and knowledge: explaining teenage pregnancy and fertility in English communities. Insights from qualitative research. *Sociological Review*, 51, 199-217.
- BERRINGTON, A. M. (2004) Perpetual Postponers? Women's, men's and couple's fertility intentions and subsequent fertility behaviour. *Population Trends*.
- BERRINGTON, A. M., COBOS HERNANDEZ, M. I., INGHAM, R. & STEVENSON, J. (2005) Antecedents and Outcomes of Young Fatherhood: Longitudinal Evidence from the 1970 British Birth Cohort Study. IN SOUTHAMPTON STATISTICAL SCIENCES RESEARCH INSTITUTE (Ed.) *S3RI Applications and Policy Working Papers*. Southampton, Southampton Statistical Sciences Research Institute, Southampton University, UK.
- BIRCH, D. (1992) *Are you my sister Mummy?*, London, Youth Support.
- BIRCH, D. (1996) *The Child that Rocks the Cradle*, London, Youth Support.
- BONELL, C., ALLEN, E., STRANGE, V., COPAS, A., OAKLEY, A., JOHNSON, A. & STEPHENSON, J. (2005) The effect of dislike of school on risk of teenage pregnancy: Testing of hypotheses using longitudinal data from a randomised trial of sex education. *Journal of Epidemiology and Community Health*, 59, 223-230.
- BONELL, C., FLETCHER, A. & MCCAMBRIDGE, J. (2007) Improving school ethos may reduce substance misuse and teenage pregnancy. *BMJ*, 334, 614-616.
- BYNNER, J. & JOSHI, H. (2007) Building the Evidence Base from Longitudinal Data: The Aims, Content and Achievements of the British Birth Cohort Studies. London, Centre for Longitudinal Studies, Institute of Education, University of London.
- BYNNER, J., JOSHI, H. & TSATSAS, M. (2000) Obstacles and Opportunities on the Route to Adulthood: Evidence from Rural and Urban Britain. London, The Smith Institute.
- CLARKE, L., JOSHI, H. & DI SALVO, P. (2000) Reports and Records of Mothers, Fathers and Children Compared. *Population Trends*, 102, 24-33.
- EAST, P. L., KHOO, S. T. & REYES, B. T. (2006) Risk and Protective Factors Predictive of Adolescent Pregnancy: A Longitudinal Prospective Study. *Applied Developmental Science*, 10, 188-199.
- EKERT-JAFFE, O., JOSHI, H., LYNCH, K., MOUGIN, R., RENDALL, M. S. & SHAPIRO, D. (2002) Fertility, Timing of Births and Socio-economic Status in France and Britain: Social Policies and Occupational Polarization. *Population (English edition)*, 57, 475-507.
- ELLIOTT, J. & SHEPHERD, P. (2006) Cohort Profile: 1970 British Birth Cohort (BCS70). *International Journal of Epidemiology*, 35, 836-843.
- ERMISCH, J. & PEVALIN, D. (2003a) Does a 'Teen-birth' have Longer-term impacts on the Mother?; Evidence from the 1970 cohort study. *ISER Working Papers*. Essex, Institute for Social and Economic Research.
- ERMISCH, J. & PEVALIN, D. (2003b) Who has a Child as a Teenager? *ISER Working Papers*. Colchester, Institute for Social and Economic Research: University of Essex.
- FEINSTEIN, L., LUPTON, R., HAMMOND, C., MUJTABA, T., SALTER, E. & SORHAINDO, A. (2008) Public Value of Social Housing: A Longitudinal Study of Relationships Between Housing and Life Chances. London, Smith Institute.
- FERRI, E. (1993) *Life at 33: The fifth follow-up of the National Child Development Study*, London, National Children's Bureau.
- GERONIMUS, A. (1997) Teenage Childbearing and Personal Responsibility: An Alternative View. *Political Science Quarterly*, 112, 405-430.
- GERONIMUS, A. (2003) Damned if you do: culture, identity, privilege, and teenage childbearing in the United States. *Social Science & Medicine*, 57, 881-893.

- GOODMAN, A., KAPLAN, G. & WALKER, I. (2004) Understanding the Effects of Early Motherhood in Britain: the Effects on Mothers. London, Institute for Fiscal Studies.
- GREENE, M. E. & BIDDLECOM, A. E. (2000) Absent and Problematic Men: Demographic Accounts of Male Reproductive Histories. *Population and Development Review*, 26, 81-115.
- HADFIELD, L., RUDOE, N. & SANDERSON-MANN, J. (2007) Motherhood, choice and the British media: a time to reflect. *Gender and Education*, 19, 255-263.
- HARDEN, A., BRUNTON, G., FLETCHER, A., OAKLEY, A., BURCHETT, H. & BACKHANS, M. (2006) Young people, pregnancy and social exclusion: A systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support. London, The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), Social Science Research Unit, Institute of Education, University of London.
- HARRELL, F. E. J. (2001) *Regression Modeling Strategies; With Applications to Linear Models, Logistic Regression and Survival Analysis*, New York, USA, Springer.
- HOBcraft, J. & KIERNAN, K. (2001) Childhood Poverty, early motherhood and adult exclusion. *British Journal of Sociology*, 52, 495-517.
- HOEM, B. (2000) Entry into Motherhood in Sweden: the influence of economic factors on the rise and fall in fertility, 1986-1997. *Demographic Research*, 2.
- HOTZ, V. J., MCELROY WILLIAMS, S. & SANDERS, S. G. (2004) Teenage Childbearing and Its Lifecycle Consequences: Exploiting a Natural Experiment. Los Angeles, University of California (UCLA): Department of Economics.
- IMAMURA, M., TUCKER, J., HANNAFORD, P., OLIVEIRA DA SILVA, M., ASTIN, M., WYNESS, L., BLOEMENKAMP, K. W. M., JAHN, A., KARRO, H., OLSEN, J. & TEMMERMEN, M. (2007) Factors associated with teenage pregnancy in the European Union countries: a systematic review. *European Journal of Public Health*, 17, 630-636.
- JAFFEE, S. R., CASPI, A., MOFFITT, T. M., TAYLOR, A. & DICKSON, N. (2001) Predicting early fatherhood and whether young fathers live with their children: prospective findings and policy reconsiderations. *Journal of Child Psychology and Psychiatry*, 42, 803-815.
- JOSHI, H. (2007) Social Polarisation in reproduction. *From Boom to Bust: Fertility, Ageing and Demographic Change*. CentreForum, London, UK, CentreForum.
- KENDALL, C., AFABLE-MUNSUZ, A., SPEIZER, I., AVERY, A., SCHMIDT, N. & SANTELLI, J. (2005) Understanding pregnancy in a population of inner city women in New Orleans - results of qualitative research. *Social Science & Medicine*, 60, 297-311.
- KIERNAN, K. & HOBcraft, J. (1997) Parental Divorce during Childhood: Age at First Intercourse, Partnership and Parenthood. *Population Studies*, 51, 41-55.
- KNEALE, D. (Unpublished) Pathways to Parenthood: Exploring the influence of Context as a Predictor of Early Parenthood. *Centre for Longitudinal Studies*. London, Institute of Education: University of London.
- KNEALE, D. & JOSHI, H. (Under review) Postponement and Childlessness - Evidence from two British cohorts. *Demographic Research*.
- OFFICE FOR NATIONAL STATISTICS (2007) Birth Statistics: Review of the Registrar General on births and patterns of family building in England and Wales, 2006. *Series FMI*. Newport, Wales, UK, Office for National Statistics.
- PLEWIS, I., CALDERWOOD, L., HAWKES, D. & NATHAN, G. (2004) National Child Development Study and 1970 British Cohort Study Technical Report: Changes in the NCDS and BCS70 Populations and Samples over Time.

- Centre for Longitudinal Studies Technical Reports*. London, Centre for Longitudinal Studies, Institute of Education, University of London.
- POLLOCK, G. (2008) Youth Transitions: Debates over the Social Context of Becoming an Adult. *Sociology Compass*, 2, 467-484.
- POWER, C. & ELLIOTT, J. (2006) Cohort profile: 1958 British birth cohort (National Child Development Study). *International Journal of Epidemiology*, 35, 34-41.
- RENDALL, M. S., CLARKE, L., PETERS, H. E., RANJIT, N. & VERROPOULOU, G. (1999) Incomplete Reporting of Men's Fertility in the United States and Britain: A Research Note. *Demography*, 36, 135-144.
- ROBSON, K. & BERTHOUD, R. (2006) Age at first birth and disadvantage among ethnic groups in Britain. *Ethnic and Racial Studies*, 29, 153-172.
- SCHOON, I., BYNNER, J., JOSHI, H., PARSONS, S., WIGGINS, R. & SACKER, A. (2002) The Influence of Context, Timing and Duration of Risk Experiences for the Passage from Childhood to Midadulthood. *Child Development*, 73, 1486-1504.
- SIMPSON, R. (2006) Childbearing on Hold: A Literature Review. *Understanding Population Trends and Processes*. Edinburgh, Centre for Research on Families and Relationships, University of Edinburgh.
- SINGH, S., DARROCH, J. E. & FROST, J. J. (2001) Socioeconomic Disadvantage and Adolescent Women's Sexual and Reproductive Behaviour: The Case of Five Developed Countries. *Family Planning Perspectives*, 33, 251-258+259.
- SOCIAL EXCLUSION UNIT (1999) Teenage Pregnancy. London, Social Exclusion Unit.
- VAN DE KAA, D. J. (1987) Europe's Second Demographic Transition. *Population Bulletin*, 42, 1-59.